AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Cancelled)

2. (Currently Amended) The power inductor of claim ~~1~~ 4 wherein said power inductor is implemented in a DC/DC converter.

3. (Currently Amended) The power inductor of claim ~~1~~ 4 wherein said slotted air gap is arranged in said magnetic core material in a direction that is parallel to said conductor.

4. (Currently Amended) ~~The power inductor of claim 1 further comprising~~ A power inductor comprising:

a magnetic core material having first and second ends;

an inner cavity arranged in said magnetic core material that extends from said first end to said second end;

a conductor that passes through said cavity;

a slotted air gap arranged in said magnetic core material that extends from said first end to said second end; and

an eddy current reducing material that is arranged adjacent to at least one of an inner opening of said slotted air gap in said cavity between said slotted air gap and said conductor and an outer opening of said slotted air gap, wherein said eddy current reducing material has a permeability that is lower than said magnetic core material.

5. (Currently Amended) The power inductor of claim ~~1~~ 4 wherein said conductor passes through said cavity along a first side of said magnetic core material and said slotted air gap is arranged in a second side of said magnetic core material that is opposite said first side.

6. (Currently Amended) The power inductor of claim ~~1~~ 4 wherein said conductor passes through said cavity along a first side of said magnetic core material and said slotted air gap is arranged in a second side that is adjacent to said first side.

7. (Original) The power inductor of claim 5 wherein a second conductor passes through said cavity along said first side.

8. (Currently Amended) ~~The power inductor of claim 7 further comprising~~ A power inductor comprising:

a magnetic core material having first and second ends;

an inner cavity arranged in said magnetic core material that extends from said first end to said second end;

a conductor that passes through said cavity;

a slotted air gap arranged in said magnetic core material that extends from said first end to said second end,

wherein said conductor passes through said cavity along a first side of said magnetic core material and said slotted air gap is arranged in a second side of said magnetic core material that is opposite said first side;

a second conductor passes through said cavity along said first side; and

a projection of said magnetic core material that extends outwardly from said first side between said conductor and said second conductor.

9. (Original) The power inductor of claim 8 wherein said slotted air gap is arranged in said opposite side of said magnetic core material above said projection.

10. (Original) The power inductor of claim 6 further comprising:

a second cavity arranged in said magnetic core material;

a center section of said magnetic core material that is arranged between said cavity and said second cavity;

a second conductor that passes through said second cavity adjacent to said first side; and

a second slotted air gap arranged in a third side that is opposite to said second side.

11. (Currently Amended) ~~The power inductor of claim 1 further comprising:~~

A power inductor comprising:

a magnetic core material having first and second ends;

an inner cavity arranged in said magnetic core material that extends from said first end to said second end;

a conductor that passes through said cavity;

a slotted air gap arranged in said magnetic core material that extends from said first end to said second end;

a second cavity in said magnetic core material;

a center "T"-shaped section arranged in said magnetic core material between said cavity and said second cavity; and

a second conductor that passes through said second cavity adjacent to said first side, wherein said first conductor is arranged adjacent to said first side.

12. (Original) The power inductor of claim 11 wherein said slotted air gap is arranged in a second side that is opposite said first side on one side of said center "T"-shaped section and a second slotted air gap is arranged in said second side that is opposite said first side on an opposite side of said center "T"-shaped section.

13. (Original) The power inductor of claim 11 wherein said slotted air gap is arranged in a second side of said magnetic core material that is adjacent to said first side and wherein a second slotted air gap is arranged in a third side that is opposite said second side.

14. (Original) The power inductor of claim 4 wherein said eddy current reducing material has a low magnetic permeability.

15. (Original) The power inductor of Claim 14 wherein said eddy current reducing material comprises a soft magnetic material.

16. (Currently Amended) The power inductor of claim ~~1~~ 4 wherein a cross sectional shape of said magnetic core material is square.

17. (Original) The power inductor of Claim 4 wherein said conductor includes an insulating material arranged on an outer surface thereof.

18. (Currently Amended) The power inductor of Claim 8 wherein said projection includes a material having a permeability lower than said magnetic core material.

19. (Original) The power inductor of Claim 18 wherein said material comprises a soft magnetic material.

20. (Currently Amended) The power inductor of claim ~~1~~ 4 wherein a cross sectional shape of said magnetic core material is one of square, circular, rectangular, elliptical, and oval.

Please cancel Claim 21.

22. (Currently Amended) The method of claim ~~21–~~24 wherein said power inductor is implemented in a DC/DC converter.

23. (Currently Amended) The method of claim ~~21–~~24 further comprising locating said slotted air gap in said magnetic core material in a direction that is parallel to said conductor.

24. (Currently Amended) ~~The method of claim 21 further comprising~~ A method for reducing saturation in a power inductor, comprising::

forming an inner cavity in a magnetic core material having first and second ends, wherein said inner cavity extends from said first end to said second end;

passing a conductor through said cavity;

providing a slotted air gap in said magnetic core material that extends from said first end to said second end; and

locating an eddy current reducing material adjacent to at least one of an inner opening of said slotted air gap in said cavity between said slotted air gap and said conductor and an outer opening of said slotted air gap.

25. (Currently Amended) The method of claim ~~21~~ 24 further comprising:

passing said conductor through said cavity along a first side of said magnetic core material;

arranging said slotted air gap along a second side of said magnetic core material that is opposite said first side.

26. (Currently Amended) The method of claim ~~21~~ 24 further comprising:

passing said conductor through said cavity along a first side of said magnetic core material; and

arranging said slotted air gap in a second side that is adjacent to said first side.

27. (Original) The method of claim 25 further comprising passing a second conductor through said cavity along said first side.

28. (Currently Amended) ~~The method of claim 27 further comprising~~ A method for reducing saturation in a power inductor, comprising::

forming an inner cavity in a magnetic core material having first and second ends, wherein said inner cavity extends from said first end to said second end;

passing a conductor through said cavity;

providing a slotted air gap in said magnetic core material that extends from said first end to said second end;

passing said conductor through said cavity along a first side of said magnetic core material;

arranging said slotted air gap along a second side of said magnetic core material that is opposite said first side;

passing a second conductor through said cavity along said first side; and

extending a projection of said magnetic core material outwardly from said first side between said conductor and said second conductor.

29. (Original) The method of claim 28 further comprising arranging said slotted air gap in said opposite side of said magnetic core material above said projection.

30. (Original) The method of claim 26 further comprising:

providing a second cavity in said magnetic core material;

locating a center section of said magnetic core material between said cavity and said second cavity;

passing a second conductor through said second cavity adjacent to said first side; and

providing a second slotted air gap in a third side that is opposite to said second side.

31. (Currently Amended) ~~The method of claim 21 further comprising:~~

A method for reducing saturation in a power inductor, comprising:

forming an inner cavity in a magnetic core material having first and second ends, wherein said inner cavity extends from said first end to said second end;

passing a conductor through said cavity;

providing a slotted air gap in said magnetic core material that extends from said first end to said second end;

providing a second cavity in said magnetic core material;

locating a center "T"-shaped section of said magnetic core material between said cavity and said second cavity; and

passing a second conductor through said second cavity adjacent to said first side, wherein said first conductor is arranged adjacent to said first side.

32. (Original) The method of claim 31 further comprising:

locating said slotted air gap in a second side that is opposite said first side on one side of said center "T"-shaped section; and

locating a second slotted air gap in said second side that is opposite said first side on an opposite side of said center "T"-shaped section.

33. (Original) The method of claim 31 further comprising:

locating said slotted air gap in a second side of said magnetic core material that is adjacent to said first side; and

locating a second slotted air gap in a third side that is opposite said second side.

34. (Original) The method of claim 24 wherein said eddy current reducing material has a low magnetic permeability.

35. (Original) The method of claim 34 wherein said eddy current reducing material comprises a soft magnetic material.

36. (Currently Amended) The method of claim ~~21–~~24 wherein a cross sectional shape of said magnetic core material is square.

37. (Currently Amended) The method of claim ~~21–~~24 wherein said conductor includes an insulating material arranged on an outer surface thereof.

38. (Original) The method of claim 28 wherein said projection comprises a material having a permability that is lower than said magnetic core material.

39. (Original) The method of claim 38 wherein said material comprises a soft magnetic material.

40. (Currently Amended) The method of claim ~~21–~~24 wherein a cross sectional shape of said magnetic core material is one of square, circular, rectangular, elliptical, and oval.

41. (Cancelled)

42. (Currently Amended) The power inductor of claim ~~41–~~44 wherein said power inductor is implemented in a DC/DC converter.

43. (Currently Amended) The power inductor of claim ~~41–~~44 wherein said slot means is arranged in said magnetic core means in a direction that is parallel to said conducting means.

44. (Currently Amended) ~~The power inductor of claim 41 further comprising~~ A power inductor comprising:

magnetic core means for conducting a magnetic field and having first and second ends;

cavity means arranged in said magnetic core means that extends from said first end to said second end for receiving conducting means for conducting current;

slot means arranged in said magnetic core means that extends from said first end to said second end for reducing saturation of said magnetic core means; and

eddy current reducing means, that is arranged at least one of adjacent to an inner opening of said slot means in said cavity means between said slot means and

said conducting means and adjacent to an outer opening of said slot means, for reducing magnetic flux reaching said conducting means.

45. (Currently Amended) The power inductor of claim ~~41~~ 44 wherein said conducting means passes through said cavity means along a first side of said magnetic core means and said slot means is arranged in a second side of said magnetic core means that is opposite said first side.

46. (Currently Amended) The power inductor of claim ~~41~~ 44 wherein said conducting means passes through said cavity means along a first side of said magnetic core means and said slot means is arranged in a second side that is adjacent to said first side.

47. (Original) The power inductor of claim 45 further comprising second conducting means that passes through said cavity means along said first side for conducting current.

48. (Currently Amended) ~~The power inductor of claim 47 wherein said magnetic core means includes~~ A power inductor comprising:

magnetic core means for conducting a magnetic field and having first and second ends;

cavity means arranged in said magnetic core means that extends from said first end to said second end for receiving conducting means for conducting current;

slot means arranged in said magnetic core means that extends from said first end to said second end for reducing saturation of said magnetic core means,

wherein said conducting means passes through said cavity means along a first side of said magnetic core means and said slot means is arranged in a second side of said magnetic core means that is opposite said first side;

second conducting means that passes through said cavity means along said first side for conducting current; and

projection means for extending outwardly from said first side between said conducting means and said second conducting means.

49. (Original) The power inductor of claim 48 wherein said slot means is arranged in said opposite side of said magnetic core means above said projection means.

50. (Original) The power inductor of claim 46 further comprising:

second cavity means arranged in said magnetic core means for receiving second conducting means for conducting current,

wherein said magnetic core means includes a center section that is arranged between said cavity means and said second cavity means, wherein said second conducting means is arranged adjacent to said first side; and

second slot means arranged in a third side that is opposite to said second side for reducing saturation of said magnetic core means.

51. (Currently Amended) ~~The power inductor of claim further comprising:~~

A power inductor comprising:

magnetic core means for conducting a magnetic field and having first and second ends;

cavity means arranged in said magnetic core means that extends from said first end to said second end for receiving conducting means for conducting current;

slot means arranged in said magnetic core means that extends from said first end to said second end for reducing saturation of said magnetic core means; and

second cavity means in said magnetic core means for receiving second conducting means for conducting current,

wherein said magnetic core means includes a center "T"-shaped section located between said cavity means and said second cavity means; and

wherein second conducting means is arranged adjacent to said first side, and wherein said first conducting means is arranged adjacent to said first side.

52. (Original) The power inductor of claim 51 wherein said slot means is arranged in a second side that is opposite said first side on one side of said center "T"-shaped section and second slot means for reducing saturation and that is arranged in said second side that is opposite said first side on an opposite side of said center "T"-shaped section.

53. (Original) The power inductor of claim 51 wherein said slot means is arranged in a second side of said magnetic core means that is adjacent to said first side and wherein second slot means for reducing saturation is arranged in a third side that is opposite said second side.

54. (Original) The power inductor of claim 44 wherein said second means has a low magnetic permeability.

55. (Original) The power inductor of claim 54 wherein said second means comprises a soft magnetic material.

56. (Currently Amended) The power inductor of claim ~~41~~ 44 wherein a cross sectional shape of said magnetic core means is square.

57. (Original) The power inductor of claim 44 wherein said conducting means includes insulating means formed around said conducting means for insulating said conducting means.

58. (Original) The power inductor of claim 48 wherein said projection means comprises a material having a lower permeability than said magnetic core means.

59. (Original) The power inductor of Claim 58 wherein said material comprises a soft magnetic material.

60. (Currently Amended) The power inductor of claim ~~41~~ 44 wherein a cross sectional shape of said magnetic core means is one of square, circular, rectangular, elliptical, and oval.

61. (Currently Amended) ~~The power inductor of claim 1~~ A power inductor comprising:

a magnetic core material having first and second ends;

an inner cavity arranged in said magnetic core material that extends from said first end to said second end;

a conductor that passes through said cavity; and

a slotted air gap arranged in said magnetic core material that extends from said first end to said second end,

wherein said magnetic core material has a "C"-shaped cross section that defines an air gap and further including an eddy current reducing material that is located across said air gap and that has a permeability that is lower than said magnetic core material.

62. (Currently Amended) The power inductor of claim ~~62~~ 61 wherein said eddy current reducing material includes a projection that extends and into said slotted air gap.

63. (Currently Amended) ~~The method of claim 21 further comprising:~~ A method for reducing saturation in a power inductor, comprising::

forming an inner cavity in a magnetic core material having first and second ends, wherein said inner cavity extends from said first end to said second end;

passing a conductor through said cavity;

providing a slotted air gap in said magnetic core material that extends from said first end to said second end;

defining a "C"-shaped cross section and an air gap with said magnetic core material; and

positioning an eddy current reducing material across said air gap, wherein said eddy current reducing material has a permeability that is lower than said magnetic core material.

64. (Original) The method of claim 63 wherein said eddy current reducing material includes a projection that extends into said slotted air gap.

65. (Currently Amended) ~~The power inductor of claim 41~~ A power inductor comprising:

magnetic core means for conducting a magnetic field and having first and second ends;

cavity means arranged in said magnetic core means that extends from said first end to said second end for receiving conducting means for conducting current;

slot means arranged in said magnetic core means that extends from said first end to said second end for reducing saturation of said magnetic core means,

_____wherein said magnetic core means has a "C"-shaped cross section that defines an air gap; and

~~further including~~ eddy current reducing means, that is located across said air gap, for reducing magnetic flux reaching said conducting means.

66. (Currently Amended) The power inductor of claim ~~66~~ 65 wherein said second means includes projection means that extends into said slotted air gap for further reducing said magnetic flux.

67. (Currently Amended) The power inductor of claim 15 wherein the soft magnetic material ~~comprised~~ comprises a powdered metal.

68. (Currently Amended) The power inductor of claim 19 wherein the soft magnetic material ~~comprised~~ comprises a powdered metal.

69. (Currently Amended) The method of claim 35 wherein the soft magnetic material ~~comprised~~ comprises a powdered metal.

70. (Currently Amended) The method of claim 39 wherein the soft magnetic material ~~comprised~~ comprises a powdered metal.

71. (Currently Amended) The power inductor of claim 55 wherein the soft magnetic material ~~comprised~~ comprises a powdered metal.

72. (Currently Amended) The power inductor of claim 59 wherein the soft magnetic material ~~comprised~~ comprises a powdered metal.